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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT : Matthew P.J. Baker et al.
SERIAL NO. : 09/580,167 EXAMINER : Adnan M. Mirza
FILED : May 30, 2000 ART UNIT : 2141
FOR : METHOD OF, AND A HETEROGENEOUS NETWORK FOR,
TRANSMITTING DATA PACKETS

APPEAL BRIEF TRANSMITTAL LETTER

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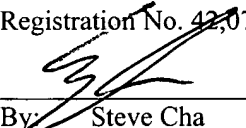
Dear Sir:

Appellants respectfully submit three copies of an Appeal Brief For Appellants that includes an Appendix with the pending claims. The Appeal Brief is now due on April 6, 2005.

Appellants enclose a check in the amount of \$500.00 covering the requisite Government Fee.

Should the Examiner deem that there are any issues which may be best resolved by telephone communication, kindly telephone Applicants undersigned representative at the number listed below.

Respectfully submitted,
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By: 
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Date: April 6, 2005

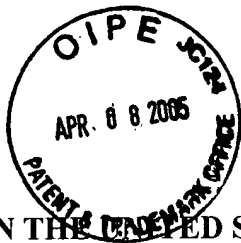
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(Name of Registered Rep.)


(Signature and Date)



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Before the Board of Patent Appeals and Interferences

In re the Application

Inventor : Matthew P.J. Baker et al.
Application No. : 09/580,167
Filed : May 30, 2000
For : METHOD OF, AND A HETEROGENEOUS
NETWORK FOR, TRANSMITTING DATA
PACKETS

APPEAL BRIEF

On Appeal from Group Art Unit 2141

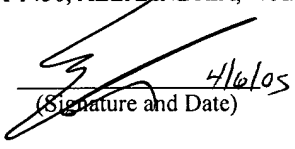
Date: April 6, 2005

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(Signature and Date)

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I. REAL PARTY IN INTEREST

The real party in interest is the assignee of the present application, U.S. Philips Corporation, and not the party named in the above caption.

II. RELATED APPEALS AND INTERFERENCES

With regard to identifying by number and filing date all other appeals or interferences known to Appellant which will directly effect or be directly affected by or have a bearing on the Board's decision in this appeal, Appellant is not aware of any such appeals or interferences.

III. STATUS OF CLAIMS

Claims 1-4 have been presented for examination. All of these claims are pending, stand finally rejected, bear the status "previously presented," and form the subject matter of the present appeal.

IV. STATUS OF AMENDMENTS

The Amendment after the Final Office Action filed January 6, 2005 has not been entered.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

A method of transmitting data packets DB1, DB2 (FIG. 2) over an interface between first and second heterogeneous parts 10, 18 (FIG. 1) includes a determining step and a reserving step (col. 2, lines 11-16). In particular, after transmission of the data packets begins, determination is made in the first part or interface, of the number of data packets being transmitted in a predetermined time (page 4, lines 12-14). In the second

part, reservation is made of sufficient information carrying capacity, corresponding to at least one data packet in excess of the number determined (page 4, lines 21-24).

A data stream encountered according to the Motion Pictures Expert Group (MPEG) standard is characterized by data blocks of constant size flowing at a constant average bit rate. The rate of arrival of these blocks may not necessarily, however, correspond with the cycle rate on an International Electrical and Electronic Engineers (IEEE) 1394 bus. Yet, in a heterogeneous network, these two protocols, i.e., MPEG and IEEE 1394 may coexist (page 1, lines 14-19). Assume, for example, that the cycle has duration of 125 μ s (page 1, lines 19-22; FIG. 2). As seen in FIG. 2, the 125 μ s cycle currently being examined temporally spans MPEG data block 1 (DB1) and one fifth of MPEG data block 2 (DB2). For simplicity of demonstration, we can assume that data blocks 3 and so on follow data block 2, with the same block length and inter-block spacing. Likewise, if the cycle shown is called cycle 0, subsequent cycles 1, 2, ... exist. Notably, in cycle 5, merely a single data block is encountered. Thus, the data size per cycle varies. If one block is transmitted, e.g., wirelessly (page 2, lines 6-7), every cycle, the data blocks waiting to be transmitted wirelessly will queue up over time. To prevent the queue from overflowing the buffer, bandwidth in the amount of 2 blocks per cycle must be reserved to transmit 2 blocks in some cycles (page 1, lines 30-32). However, 2 blocks per cycle is more bandwidth than is needed. Therefore, bandwidth is wasted, and bandwidth is particularly precious in wireless applications (page 2, lines 1-7).

If, however, the number of blocks being transmitted is counted over the span of several consecutive cycles (FIG. 3), this number can be divided by the total cycle time. However, this number of blocks may vary, depending upon the phase of the consecutive cycles. For example, referring again to FIG. 2, if one chooses any three consecutive 125 μ s cycles, the result is that either three or four blocks are transmitting, depending upon the starting point, or phase, of the three cycles. For example, at cycle 5, your count is three, rather than four. If your result of counting is three, and you do not know if this is the low number or the high number, you can add one to the count. Adding one assures that bandwidth will be adequate. By the same token, adding one adds on extra bandwidth if your counting result is four; in particular, with the added count, your result is five.

However, five divided by three, i.e., your number of cycles, still results in a quotient less than 2; accordingly, you still save bandwidth, even in the less favorable case.

At the commencement of transmission, the amount of information carrying capacity reserved in the second part may be made to correspond to that reserved in the first part. The amount of information carrying capacity reserved is then reduced during transmission to at least one packet in excess of the number determined (page 4, lines 12-15).

VI. ISSUE TO BE REVIEWED ON APPEAL

In the pending matter, the issue to be reviewed on appeal is whether claims 1-4 are invalidly rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 6,321,260 to Takeuchi et al. ("Takeuchi").

VII. ARGUMENT

Rejection of claim 1 and 3 for obviousness over Takeuchi

Claim 1 recites:

A method of transmitting data packets over an interface between first and second heterogeneous parts, the method comprising the steps of: determining, after transmission of the data packets begins, in the first part or interface, the number of data packets being transmitted in a predetermined time; and reserving, in the second part, sufficient information carrying capacity, corresponding to at least one data packet in excess of the number determined.

Underlining is added to the above quotation of claim 1 to emphasize some of the failings of Takeuchi in disclosing or suggesting the present invention as recited in claim 1.

Takeuchi relates to sending data packets (col. 3, line 67 - col. 4, line 1; col. 4, lines 22-23) from a sender node to a receiver node (col. 3, line 50). A preliminary step is the establishment of a logical connection from the sender node to the receiver node. Once the connection is established, the transfer of data packets can begin (col. 5, line 45(46)-51(52)). To establish the connection, the sender node transmits a control message CONNECT that is relayed to the receiver node (col. 5, lines 53-54). The receiver node then, if the connection can be established, transmits back a control message ACCEPT to the sender node. Having established the connection, transfer of data packets from the sender to the receiver node can commence (col. 5, lines 60-64).

In the context of computer networks, a "data packet" is understood to include, in addition to at least a destination address, payload. Thus, a "data packet" is distinguished from a "control message." Takeuchi make this same distinction (col. 4, lines 19-23: ". . . it sends a control message storing the information processor for sending data, an information processor for receiving data, the data packet size, and the data packet transfer rate . . .) Here, the control message is the CONNECT control message sent to establish the logical connection, and the "data packet" is the vehicle for "transferring continuous media data from the sender node to the receiver node" (col. 3, lines 49-50) once the connection is established (see abstract, last sentence: " The sender node receives the ACCEPT command and then sends a data packet").

In relaying the CONNECT control message from the sender to the receiver node, each relay node "secures" from the node at the next hop "the bandwidth necessary" for the data packets to be transmitted once the connection is established (abstract). This reservation of bandwidth is made before the CONNECT control message is forwarded to

the next hop (col. 5, lines 53(54)-58). The bandwidth reservation is used to update the bandwidth allocation table (FIG. 13, step 1304). When the CONNECT control message reaches the receiver node, all of the bandwidth allocations have been made and are reflected in the bandwidth allocation table. At that point, the bandwidth allocation table (col. 15, line 9: "bandwidth allocation table") is read by the sending control module of a node, and the sending control module calculates, based on the read value, the number of data packets to be transmitted to the next hop.

This calculating is what the Office Action, in item 2, suggests as corresponding to "determining, after transmission of the data packets begins, . . . the number of data packets being transmitted in a predetermined time."

However, by this time, any reserving of bandwidth has already occurred, i.e., before establishing the logical connection between sending and receiving nodes.

Therefore, it is at least unclear how Takeuchi can properly be said to disclose or suggest:

determining, after transmission of the data packets begins, in the first part or interface, the number of data packets being transmitted in a predetermined time; and
reserving, in the second part, sufficient information carrying capacity, corresponding to at least one data packet in excess of the number determined.

Even for this reason alone, Takeuchi fails to disclose or suggest the present invention as recited in claim 1.

In addition, however, Takeuchi fails to disclose or suggest, "reserving, in the second part, sufficient information carrying capacity, corresponding to at least one data packet in excess of the number determined."

In Takeuchi, a cycle is a “fixed interval” of time (col. 15, line 2: “fixed interval”). Also, the total sizes of the data packets sent per cycle remains “strictly constant” (col. 15, line 4: “strictly constant”). Thus, the Takeuchi bandwidth reservation or “required transfer rate” is a fixed data size per cycle. The node derives the required transfer rate from the arriving CONNECT control message (col. 8, lines 45(46)-49(50)). Since Takeuchi maintains a fixed data size per cycle, or “fixed interval” of time, in transferring data from the sending or relay node, “the receiver can receive data at the same transfer rate” (col. 15, line 65 – col. 16, line 3). Takeuchi has no need, and no motivation, to alter or augment this bandwidth reservation. Unlike a processing environment that would derive benefit from the present invention, Takeuchi does not experience, for example, variable data size per cycle, the data consisting of blocks of constant size and constant average bit rate.

It is accordingly unclear to the present applicants, what motivation would have existed to modify Takeuchi for “reserving, in the second part, sufficient information carrying capacity, corresponding to at least one data packet in excess of the number determined.”

Item 2 of the Office Action offers, as motivation for the hypothetical modification of Takeuchi, to “increase the mobility of the networks and increase the usage of the network by the user from one access point.”

The applicants fail to understand the meaning, origin, relevance or underpinnings of this statement by the Office Action.

For this reason too, Takeuchi fails to anticipate or render obvious the present invention as recited in claim 1.

Claim 3 recites:

the first part having means for, after transmission of the data packets begins, determining the number of data packets being transmitted in a predetermined time, and the second part having means for receiving the data packets transmitted by the first part and means for reserving sufficient information carrying capacity corresponding to at least one data packet in excess of the number determined

Claim 3 is believed to distinguish patentably over the cited reference for at least all the same reasons set forth above with regard to claim 1.

Rejection of claim 2 and 4 for obviousness over Takeuchi

Claims 2 and 4 depend from base claims 1 and 3, and are deemed patentable over the cited reference at least due to their dependency; however, claims 2 and 4 are separately patentable by virtue of their further merits.

Claim 2 recites, “the amount of information carrying capacity reserved is reduced during transmission to at least one packet in excess of the number determined.”

The Office Action cites again to Takeuchi column 3, line 64 through column 4, line 13, but this passage relates to Takeuchi procedures that have been discussed above; accordingly, the applicants are unable to find anything in the cited passage that relates to capacity reduction. Likewise, the cited passage seems to support the analysis set forth above regarding the shortcomings of Takeuchi when the reference is applied in rejection of the instant claims.

Claim 4 recites, “said means for reserving . . . is responsive to signals indicating the number of data packets being transmitted for reducing the amount of information carrying capacity to at least one data packet in excess of the number determined.”

An argument analogous to that applied above to claim 2 applies to claim 4.


VIII. CONCLUSION

In view of the above analysis, it is respectfully submitted that the referenced teachings, whether taken individually or in combination, fail to anticipate or render obvious the subject matter of any of the present claims. Therefore, reversal of all outstanding grounds of rejection is respectfully solicited.

Respectfully submitted,

Daniel Piotrowski
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Date: April 6, 2005


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Attorney for Applicant
Registration No. 44,069

IX. CLAIMS APPENDIX

1. (previously presented) A method of transmitting data packets over an interface between first and second heterogeneous parts, the method comprising the steps of:

determining, after transmission of the data packets begins, in the first part or interface, the number of data packets being transmitted in a predetermined time; and

reserving, in the second part, sufficient information carrying capacity, corresponding to at least one data packet in excess of the number determined.

2. (previously presented) A method as claimed in claim 1, wherein at the commencement of transmission the amount of information carrying capacity reserved in the second part corresponds to that reserved in the first part and in that the amount of information carrying capacity reserved is reduced during transmission to at least one packet in excess of the number determined.

3. (previously presented) A heterogeneous network comprising:
a first and a second heterogeneous parts; and
an interface between the said parts,
wherein the first part having means for transmitting data packets and the first part or interface having means for, after transmission of the data packets begins, determining the number of data packets being transmitted in a predetermined time, and the second part having means for receiving the data packets transmitted by the first part and means for reserving sufficient information carrying capacity corresponding to at least one data packet in excess of the number determined.

4. (previously presented) A heterogeneous network as claimed in claim 3, wherein said means for reserving initially reserves in the second part the same amount of information carrying capacity as is reserved in the first part and is responsive to signals indicating the number of data packets being transmitted for reducing the amount of information carrying capacity to at least one data packet in excess of the number determined.